

Title (en)

HIGH STRENGTH HEAT-TREATED STEEL WIRE FOR SPRING

Title (de)

WÄRMEBEHANDELTEN STAHLDRAHT FÜR HOCHFESTE FEDER

Title (fr)

FIL D'ACIER TRAITÉ THERMIQUEMENT POUR RESSORTS À HAUTE RÉSISTANCE

Publication

EP 2058411 B1 20140219 (EN)

Application

EP 06823432 A 20061109

Priority

JP 2006322784 W 20061109

Abstract (en)

[origin: EP2058411A1] The present invention provides a high strength heat treated steel wire for spring having a tensile strength of 2000 MPa or more which is coiled in the cold state and can achieve both sufficient atmospheric strength and coilability and spring steel used for that steel wire, that is, a high strength heat treated steel wire for a spring characterized by comprising, by mass%, C: 0.5 to 0.9%, Si: 1.0 to 3.0%, Mn: 0.1 to 1.5%, Cr: 1.0 to 2.5%, V: over 0.15 to 1.0%, and Al: 0.005% or less, controlling N to 0.007% or less, further containing one or two of Nb: 0.001 to less than 0.01% and Ti: 0.001 to less 0.005%, and having a tensile strength of 2000 MPa or more, having cementite-based spheroidal carbides and alloy-based spheroidal carbides in a microscopic visual field satisfying an area percentage of carbides with a circle equivalent diameter of 0.2 μm or more of 7% or less and a density of carbides with a circle equivalent diameter of 1 grain/ μm^2 or less, having a prior austenite grain size number of #10 or more, and having retained austenite of 15 mass% or less.

IPC 8 full level

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CPC (source: EP KR)

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Cited by

CN104745953A; EP2746420A4; EP2453033A4; CN108350537A; EP3346020A4; US10844920B2; US9523404B2; WO2022064249A1

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